

Attachment 9

Water Quality and Other Expected Benefits

Groundwater production from the Chino Basin is regulated by the Department of Public Health for Title 22 constituent compliance. Fontana Water Companies Water System Master Plan Update, August 2008, indicates that elevated levels of contaminants are being experienced in a number of production facilities. Contaminants include PCE, nitrate, TDS, and perchlorate.

The Project intends to deliver higher quality storm and recycled water to the groundwater basin. The water recharged will improve water quality in the aquifer by dilution.

Again, the project will benefit an estimated 2.2 million people within the Chino Basin.

At the completion of construction, Project benefits will immediately be received. All water conveyed to the Vulcan Basin will percolate through the groundwater table and have an immediate blending effect.

The Project, when completed, will operate as a passive system. When precipitation occurs, water will be delivered to the basin. For the recycled water system, opening of manual control valve will deliver water. There are no uncertainties related to the project benefits.

The Project will not create any adverse effects. To the contrary, it will reclaim a mined pit, currently aesthetically unpleasing, to produce flood control and aquifer recharge facilities.

All values for included tables have been described, qualified, and/or supported in the comment section of each table.

Table 19 - Water Quality and Other Expected Benefit
(All Costs should be in 2009 Dollars)

Proposal: Vulcan Pit Flood Control and Aquifer Recharge

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (units)	Without Project	With Project	Change Resulting from Project (e)-(d)	Unit \$ Value ^{1.)}	Annual \$ Value ^{1.)} (f)*(g)	Discount Factor ^{1.)}	Discounted Benefits ^{1.)} (h)*(i)
2009	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	1.000	\$ 420,000
2010	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.943	\$ 396,060
2011	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.890	\$ 373,800
2012	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.840	\$ 352,800
2013	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.792	\$ 332,640
2014	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.747	\$ 313,740
2015	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.705	\$ 296,100
2016	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.665	\$ 279,300
2017	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.627	\$ 263,340
2018	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.592	\$ 248,640
2019	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.558	\$ 234,360
2020	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.527	\$ 221,340
2021	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.497	\$ 208,740
2022	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.469	\$ 196,980
2023	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.442	\$ 185,640
2024	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.417	\$ 175,140
2025	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.394	\$ 165,480
2026	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.371	\$ 155,820
2027	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.350	\$ 147,000
2028	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.330	\$ 138,600
2029	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.312	\$ 131,040
2030	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.294	\$ 123,480
2031	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.278	\$ 116,760
2032	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.262	\$ 110,040
2033	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.247	\$ 103,740
2034	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.233	\$ 97,860
2035	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.220	\$ 92,400
2036	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.207	\$ 86,940
2037	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.196	\$ 82,320

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (units)	Without Project	With Project	Change Resulting from Project (e)-(d)	Unit \$ Value ^{1.)}	Annual \$ Value ^{1.)} (f)*(g)	Discount Factor ^{1.)}	Discounted Benefits ^{1.)} (h)*(i)
2038	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.185	\$ 77,700
2039	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.174	\$ 73,080
2040	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.164	\$ 68,880
2041	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.155	\$ 65,100
2042	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.146	\$ 61,320
2043	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.138	\$ 57,960
2044	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.130	\$ 54,600
2045	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.123	\$ 51,660
2046	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.116	\$ 48,720
2047	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.109	\$ 45,780
2048	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.103	\$ 43,260
2049	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.097	\$ 40,740
2050	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.092	\$ 38,640
2051	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.087	\$ 36,540
2052	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.082	\$ 34,440
2053	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.077	\$ 32,340
2054	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.073	\$ 30,660
2055	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.069	\$ 28,980
2056	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.065	\$ 27,300
2057	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.060	\$ 25,200
2058	Avoided Treatment Cost	ACFT	0	3,500	3,500	\$ 120	\$ 420,000	0.058	\$ 24,360

Total Present Value of Discounted Costs (Sum of Column (i)) \$ 7,017,360

Notes:

1.) Complete these columns if dollar value is being claimed for the benefit.

Comments:

(a) Projected Project Life is 50 years.

(b) Type of Benefit is the cost avoided for water treatment.

(c) Measure of Benefit is the unit used for quantifiable benefits.

(d) Without the Project there are no water quality benefits.

(e) With the Project the City will increase the quality of groundwater and eliminate the need for treatment.

(f) Change Resulting from Project is the difference in unit value of the 'With Project' and 'Without Project' scenario.

(g) The Unit Value for treatment is \$120 per acre-foot as determine by Fontana Water Companies current treatment cost as established in their current water master plan.

(h) The Annual Value is the cost per year of the benefit.

(i) Discount Factors are based on a 6% discount rate and a 50 year analysis period, as provided in the application.

(j) Discounted Costs are Annual Values multiplied by the Discount Factor.